

REMARKS

In response to the Office Action mailed August 19, 2008, Applicants respectfully request reconsideration. Claims 1-20 were previously pending in this application. Claims 1, 10, and 12-13 have been amended. As a result, claims 1-20 are pending for examination with claims 1 and 10 being independent. No new matter has been added.

Objection to the Specification

The Office Action objects to the title for purportedly being non-descriptive. To address this issue, Applicants have herein amended the title as “ELECTROCHEMICAL DEVICE AND ELECTRODE SUITABLE FOR USE IN PRIMARY AND/OR SECONDARY BATTERIES,” which is believed to be descriptive. Accordingly, withdrawal of this objection is respectfully requested.

Rejections Under 35 U.S.C. §103

The Office Action rejects claims 1-20 under 35 U.S.C. §103(a) as purportedly being unpatentable over Hoffmann (US Patent No. 4,894,302) in view of Mayes (US Patent Publication No. 2002/0048706 A1). Applicants respectfully request reconsideration, because each of the independent claims, as herein amended, patentably distinguishes over the cited references.

I. Claim 1

As amended, claim 1 recites, *inter alia*, “at least some ions from the ionic conductor undergo surface interactions with particles in the active material; and lattice parameters of the active material are substantially unchanged after the surface interactions.” Neither Hoffman nor Mayes discloses these limitations.

Both Hoffmann and Mayes describe rechargeable batteries in which charging and discharging take place via intercalation reactions. Hoffman describes intercalation reactions as insertion of metal guest ions into inorganic host structures (Hoffman: column 2, lines 21-23). More specifically, Hoffman states that the active cathode material is a material capable of containing an

intercalated species in its structure (Hoffman: column 5, lines 57-59). By contrast, claim 1 recites “at least some ions from the ionic conductor undergo **surface interactions** with particles in the active material” (emphasis added). Nowhere does Hoffman disclose or suggest this limitation.

Mayes describes intercalation as a reaction in which ions, atoms or molecules penetrate between the layers of a solid material to form intercalation compounds (Mayes: paragraph 0007). More specifically, Mayes describes lithium ions diffusing within an ion host particle (Mayes: paragraph 0106). Therefore, Mayes also fails to disclose or suggest “at least some ions from the ionic conductor undergo surface interactions with particles in the active material,” as recited in claim 1.

For these reasons, claim 1 patentably distinguishes over the cited references. Accordingly, withdrawal of this rejection is respectfully requested.

Hoffman and Mayes also fail to disclose or suggest, “lattice parameters of the active material are substantially unchanged after the surface interactions,” as recited in claim 1. At page 7, lines 9-14, Hoffman states that the intercalation product can comprise a ternary phase for magnesium ion proportions up to a maximum characteristic for each host structure and beyond which structural modifications take place in the host material producing multiple crystal phases with the intercalated ion. This suggests that changes in the host structure do occur, although excessive changes (i.e., beyond a maximum characteristic) lead to modifications that produce multiple crystal phases. Therefore, Hoffman does not describe or suggest that “lattice parameters of the active material are substantially unchanged after the surface interactions,” as recited in claim 1.

Likewise, Mayes states that small particles are better able to withstand size changes upon intercalation and de-intercalation, reducing the potential of the particles to crack and/or to lose contact with electronically-or ionically-conductive materials (Mayes: paragraph 106). This suggests that size changes do occur upon intercalation and de-intercalation. Therefore, Mayes also fails to disclose or suggest that “lattice parameters of the active material are substantially unchanged after the surface interactions,” as recited in claim 1.

For these additional reasons, claim 1 patentably distinguishes over the cited references.

Each of claims 2-9 depends from claim 1 and is allowable for at least the same reasons. Accordingly, withdrawal of the rejections of these claims is respectfully requested.

II. Claim 10

As amended, claim 10 recites, *inter alia*, “at least some ions from the ionic conductor undergo surface interactions with particles in the active material; and lattice parameters of the active material are substantially unchanged after the surface interactions.” For reasons that should be clear from the foregoing, neither Hoffman nor Mayes discloses these limitations. Accordingly, withdrawal of the rejection of claim 10 is respectfully requested.

Each of claims 11-20 depends from claim 10 and is allowable for at least the same reasons. Accordingly, withdrawal of the rejections of these claims is respectfully requested.

CONCLUSION

A Notice of Allowance is respectfully requested. The Examiner is requested to call the undersigned at the telephone number listed below if this communication does not place the case in condition for allowance.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicant hereby requests any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, the Director is hereby authorized to charge any deficiency or credit any overpayment in the fees filed, asserted to be filed or which should have been filed herewith to our Deposit Account No. 23/2825, under Docket No. S1459.70129US00.

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Respectfully submitted,

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